

## ABSTRACT

A system and method for predicting the effect of patient self-care actions on a disease control parameter. A future disease control parameter value  $X(t_j)$  at time  $t_j$  is determined from a prior disease control parameter value  $X(t_i)$  at time  $t_i$  based on an optimal control parameter value  $R(t_j)$  at time  $t_j$ , the difference between the prior disease control parameter value  $X(t_i)$  and an optimal control parameter value  $R(t_i)$  at time  $t_i$ , and a set of differentials between patient self-care parameters having patient self-care values  $S_M(t_i)$  at time  $t_i$  and optimal self-care parameters having optimal self-care values  $O_M(t_i)$  at time  $t_i$ . The differentials are multiplied by corresponding scaling factors  $K_M$ . The system includes an input device for entering the patient self-care values  $S_M(t_i)$ . A memory stores the optimal control parameter values  $R(t_i)$  and  $R(t_j)$ , the prior disease control parameter value  $X(t_i)$ , the optimal self-care values  $O_M(t_i)$ , and the scaling factors  $K_M$ . A processor in communication with the input device and memory calculates the future disease control parameter value  $X(t_j)$ . A display is connected to the processor to display the future disease control parameter value  $X(t_j)$  to a patient.